Claims

1) A rotating induction machine comprising more than three different phases of electrical current fed to stator windings, wherein said stator windings arranged with a winding distribution according to the sinc function.

2) The rotating induction machine of claim 1 wherein said stator windings arranged with a winding distribution approximating the sinc function.

3) The rotating induction machine of claim 2 wherein said sinc function having a cutoff frequency at the fourth or the fifth harmonic.

4) The rotating induction machine of claim 2 wherein said more than three different phases comprising five phases and wherein said sinc function comprising a cutoff frequency to substantially filter spatial harmonics above the third spatial harmonic.

5) The rotating induction machine of claim 4 further comprising an inverter drive, for supplying said more than three phases of electrical current, wherein said stator windings being connected to said inverter drive with a mesh connection.

6) The rotating induction machine of claim 5 wherein said inverter drive capable of selectively injecting third harmonic into the electrical current, and wherein said mesh connection arranged with a span of L=2.

7) A rotating induction machine comprising more than three different phases of electrical current fed to stator windings, wherein said stator windings arranged with a winding distribution according to the cyclic sinc function.

8) The rotating induction machine of claim 7 wherein said stator windings arranged with a winding distribution approximating the cyclic sinc function.

9) The rotating induction machine of claim 8 wherein said cyclic function having a cutoff frequency to pass low-order harmonics and to substantially filter out all higher harmonics.

10) The rotating induction machine of claim 8 wherein said winding distribution approximating the cyclic sinc function comprising groups of windings comprising a fixed number of turns being positioned in the center of each lobe of the cyclic sinc function.

11) The rotating induction machine of claim 10 wherein said cyclic function having a cutoff frequency to pass low order harmonics and to substantially filter out high-order harmonics.

12) The rotating induction machine of claim 8 wherein said winding distribution approximating the cyclic sinc function comprising groups of windings with one of two predetermined numbers of turns being arranged in slots of the stator to substantially approximate the cyclic sinc function.

13) The rotating induction machine of claim 10 wherein said cyclic sinc function having a cutoff frequency to pass low order harmonics and to substantially filter out high-order harmonics.

14) The rotating induction machine of claim 8 wherein said cyclic sinc function having a cutoff frequency at the fourth or the fifth harmonic.

15) The rotating induction machine of claim 8 wherein said more than three different phases comprising five phases and wherein said cyclic sinc function comprising a cutoff frequency to substantially filter spatial harmonics above the third spatial harmonic.

16) The rotating induction machine of claim 15 further comprising an inverter drive, for supplying said more than three phases of electrical current, wherein said stator windings being connected to said inverter drive with a mesh connection.

17) The rotating induction machine of claim 16 wherein said inverter drive capable of selectively injecting third harmonic into the electrical current, and wherein said mesh connection arranged with a span of L=2.

18) The rotating induction machine of claim 8 further comprising an inverter drive, for supplying said more than three phases of electrical current, wherein said stator windings being connected to said inverter drive with

a mesh connection and wherein said inverter drive capable of selectively injecting low order harmonics into the electrical current drive waveform.

19) The rotating induction machine of claim 18 wherein said cyclic sinc function having a cutoff frequency to pass said low order harmonics only.

20) The rotating induction machine of claim 8 wherein said winding distribution approximating the cyclic sinc function, comprising windings positioned for each phase to approximate only the broad central regions of the cyclic sinc function, whereby ignoring the side lobes of the cyclic sinc function.

21) The rotating induction machine of claim 20 wherein said windings positioned for each phase only according to the broad central regions of the cyclic sinc function comprising windings positioned to approximate a sine function within the broad central regions of the cyclic sinc function.

22) The rotating induction machine of claim 20 wherein said windings positioned for each phase only according to the broad central regions of the cyclic sinc function comprising windings positioned to approximate the cyclic sinc function with a gradient of increasing number of turns up to a maximum value in the broad central regions of the cyclic sinc function.

23) The rotating induction machine of claim 8 wherein said winding distribution approximating the cyclic sinc function, comprising windings positioned for each phase to approximate the broad central regions of the cyclic sinc function and a single lobe on either side of the broad central regions of the cyclic sinc function.